PSYCHOLOGICAL AFFLICTIONS, LIFE STYLES AND PSYCHOSOCIAL STRESSORS IN RHEUMATOID ARTHRITIS PATIENTS AND NORMAL ADULTS: A COMPARATIVE STUDY

A

SYNOPSIS

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Introduction:-

The investigator wants to study the factors influencing rheumatoid arthritis, by comparing the psychological afflictions (i.e. egotism, attachment, anger and greed), life style (food intake behavior, sleeping behavior, physical activity and spiritual behavior) and psychosocial stressors of rheumatoid arthritis patients with that of normal adults.

Rheumatoid arthritis:

Rheumatoid arthritis (RA) is a chronic (long-term) and auto immune disease that results in a systemic inflammatory disorder that may affect many tissues and organs, but principally attacks flexible joints. It can be a disabling and painful condition, which can lead to substantial loss of functioning and mobility if not adequately treated. In autoimmune disease, body's immune system attacks its own healthy tissues. Rheumatoid arthritis is two to three times more common in women than in men, but men tend to have more severe symptoms. It usually happens in middle age, but young children and the elderly also can get rheumatoid arthritis. (Zealman, 2012).

Rheumatoid arthritis symptoms can come and go, and each person with rheumatoid arthritis is affected differently. Some people have long periods of remission. Their rheumatoid arthritis is inactive, and they have few or no symptoms during this time. Other people might have near-constant rheumatoid arthritis symptoms for months at a stretch. Arthritis means inflammation in a joint. Joint inflammation causes redness, warmth, swelling, and pain within the joint.

Rheumatoid arthritis is potentially the most serious arthritic condition, being the most crippling and painful type. It can spread to all of the bodily joints. In the case of rheumatoid arthritis, some patients experience only mild episodes of inflammation and pain in a few joints, but others suffer intense pain in many joints. The lubricating fluid leaks out of the joints usually in the knees, ankles, shoulders, elbows and wrists. Cartilage is destroyed, and joint function is reduced. The conversion of organic matter into minerals for bones decreases near the joints. Bone erosion take place near the joints. Joints become dislocated and sometimes fused, producing deformities (Anderson et. al., 1985).

Some of the people whose rheumatoid arthritis progression to the later stage shows associated damage to other organs, including vascular or heart value diseases. The process involves an inflammatory response of the capsule around the joints secondary to swelling of synovial cells, excess synovial fluid, and the development of fibrous tissue in the synovial. The pathology of the disease process often leads to the destruction of articular cartilage and ankylosis (fusion) of the joints. Although the cause of rheumatoid arthritis is unknown, autoimmunity plays a big part, and rheumatoid arthritis is a systemic autoimmune disease. Rheumatoid arthritis is a type of chronic arthritis that occurs in joints on both sides of the body (such as both hands, both wrists, and both knees). This symmetry helps distinguish rheumatoid arthritis from other types of arthritis.

Although rheumatoid arthritis can involve different parts the body, joints are always affected. When the disease acts up, joints become inflamed. Inflammation is the body's natural response to infection or other threats, but in rheumatoid arthritis inflammation occurs inappropriately and for unknown reasons. Joint inflammation is a hallmark of rheumatoid arthritis, that includes:
Stiffness: The joint is harder to use and might have a limited range of motion. "Morning stiffness" is one of the hallmark symptoms of rheumatoid arthritis. While many people with other forms of arthritis have stiff joints in the morning, it takes people with rheumatoid arthritis more than an hour (sometimes several hours) before their joints feel loose.
Swelling: Fluid enters into the joint and it becomes puffy; this also contributes to stiffness.
Pain: Inflammation inside a joint makes it sensitive and tender. Prolonged inflammation causes damage that also contributes to pain.
Redness and warmth: The joints may be somewhat warmer and more pink or red than neighboring skin.

Prevalence of rheumatoid arthritis:
The prevalence of Rheumatoid arthritis is approximately 0.8% of the population (range 0.3 to 2.1%); women are affected approximately three times more often than men. The prevalence increases with age, and sex differences diminish in the older age group. Rheumatoid arthritis is seen throughout the world and affects all races. However the incidence and severity seems to be less in rural sub-Saharan Africa and in Caribbean blacks. The onset is most frequent during the

fourth and fifth decades of life, with 80% of all patients developing this disease between the age of 35 and 50. The incidence of rheumatoid arthritis is more than six times as great in 60-64 year women. (Fauci, Braunwald, Kasper, Jameson and Loscalozo, 2008).
Some of the family studies indicate a genetic predisposition. For example, severe rheumatoid arthritis is found at approximately four times the expected rate in first degree relatives of individuals with disease associated with the presence of the autoantibody, rheumatoid factor; approximately 10% of patients with rheumatoid arthritis will have affected first degree relatives.

Malaviya, Kapoor, Singh and Pande (1993) studied the prevalence of rheumatoid arthritis in the adult Indian population. As the first step, a house-to-house survey of rural population near Delhi was conducted by two trained health workers. The target population comprised 44 551 adults (over 16 years old). The health workers identified the possible cases of rheumatoid arthritis (RA) using a questionnaire. These cases were then further evaluated by the authors using the 1987 revised ARA criteria for the diagnosis of RA. A response rate of 89.5% was obtained and 3393 persons were listed as possible cases of RA by the health workers. Of these, 299 satisfied the revised ARA criteria for the diagnosis of RA, giving a prevalence of 0.75%. Projected to the whole population, this would give a total of about seven million patients in India. The prevalence of RA in India is quite similar to that reported from the developed countries. It is higher than that reported from China, Indonesia, Philippines and rural Africa. These findings are in keeping with the fact that the north Indian population is genetically closer to the Caucasians than to other ethnic groups.

Rheumatoid Arthritis Symptoms:

Rheumatoid arthritis can affect many areas of the body. Once the immune system is triggered, immune cells migrate from the blood into the joints and joint-lining tissue, called synovium. There the immune cells make inflammatory substances that cause irritation, wearing down of cartilage (the cushioning material at the end of bones), swelling and inflammation of the joint lining. As the cartilage wears down, the space between the bones narrows. As it gets worse, the bones could rub against each other. Inflammation of the joint lining causes fluid to build up with the joint. As the lining expands, it may damage the bone. All these things cause the joint to become very painful, swollen, and warm to the touch.

Involvement of multiple areas of the body is more common with moderate to severe rheumatoid arthritis. These effects result from the general process of inflammation, leading to a wide variety of symptoms of rheumatoid arthritis: Rheumatoid nodules are bumps under the skin that most often appear on the elbows. Sometimes they are painful. It can even affect a joint in one's voice box or larynx (cricoarytenoid joint), causing hoarseness. It can cause inflammation in the lining around the heart, but it usually has no symptoms. If symptoms do develop, it may cause shortness of breath or chest pain. In addition, people with rheumatoid arthritis are more likely to develop clogged arteries in their heart, which can lead to chest pain and heart attack. The eyes are affected in less than 5% of people with rheumatoid arthritis. When the eyes are affected, symptoms can include red, painful eyes or possibly dry eyes. Other symptoms include fatigue, malaise (feeling ill), loss of appetite, which can lead to weight loss, muscle aches, swelling in one or more joints, stiffness around the joints that lasts for at least 1 hour in the early morning, constant or recurring pain or tenderness in a joint, difficulty using or moving a joint normally, warmth and redness in a joint.

Cause of Rheumatoid Arthritis:

The cause of rheumatoid arthritis is unknown. It is thought to be due to a combination of genetic, environmental, and hormonal factors. With rheumatoid arthritis, something seems to trigger the immune system to attack the joints and sometimes other organs. Some theories suggest that a virus or bacteria may alter the immune system, causing it to attack the joints. Other theories suggest that unhealthy life style may lead to rheumatoid arthritis. Researches do not indicate exactly what role genetics plays in rheumatoid arthritis. Some people do seem to have a genetic or inherited factor that increases their chance of developing rheumatoid arthritis.

Fitzpatrick, Newman, Lamb and Shipley (1988) studied Social relationships and psychological well-being in rheumatoid arthritis. This study examined the social relationships of a sample of 158 patients attending a hospital rheumatology clinic with rheumatoid arthritis (RA). Scores of the sample were compared with those of other samples on the Interview Schedule for Social Interaction (ISSI). In addition the effects of severity of disease activity and of disability upon social relationships were examined. Diffuse social relationships such as with friends and acquaintances, rather than more intimate ones appear to be more affected in individuals with RA.

Psychological well-being was assessed by means of two measures. The more favorable patients scored for social relationships, the more favorable were their scores for psychological well-being using both scores. More diffuse social relationships were more strongly correlated with psychological well-being than were the scores for more intimate relationships. Despite the strong effects of social relationships upon well- being, no buffering action on the effects of disability upon well-being was found.

Young (1992) in his article provided a review and discussion of recent developments in psychological research related to rheumatoid arthritis (RA). A description of the medical aspects of the disease is followed by an overview of the literature relating psychological variables to pain and disability in RA; a summary evaluating affective reactions, disease-related beliefs, and coping strategies in RA patients; and a discussion of psychological interventions with this patient population. Methodological weaknesses in the literature are noted and directions for future collaborative research between rheumatologists and psychologists are suggested.

The main complications of rheumatoid arthritis are pain, limitations in activities and need to be dependent on others (Van Lankveld et al., 1993). In addition, because rheumatoid arthritis primarily affects older people, its sufferers often have other chronic conditions present as well, such as poor cognitive functioning and poor vision, which may interact with arthritis to produce high levels of disability (Shifren, Park, Bennett, & Morrell, 1999; Verbrugge, 1995). One of the most common complications of rheumatoid arthritis is depression (Dickens, McGowan, ClarkCarter, & Creed, 2002). Depression may feed back into the pain process enhancing pain from RA (Zautra & Smith, 2001). Negative affect may increase arthritis disease activity (Smith & Zautra, 2002). A vicious spiral may be sent into effect: As the disease progresses, greater disability results. Patients may come to doubt their abilities to manage vital life activities, which can contribute to high level of depression, which, in turn, exacerbates physical impairment (Neugebauer, katz & Pasch, 2003).

At one time, Psychologists speculated that there might be a “rheumatoid arthritis personality”. These personality types was said to be perfectionist, depressed, and restricted in emotional expression, especially the expression of anger. Recent research now casts doubt on the accuracy

and value of such a profile, at least as a cause of arthritis (for example, Smith & Wallston, 1995). However, cognitive distortion and feeling of helplessness can aggravate depression and other emotional responses to arthritis (for example, Clemmey & Nicassion, 1997; Fifield et al., 2001; Smith, Christensen, Peck, & Ward, 1994). Gaps in social support may also be a consequence (Fyrand, Moum, Finset, & Glennas, 2002).

On the other side of the coin some of psychological factors like vikaras of mind (including ego, anger, attachment) and psychosocial factors like stress, life style (including sleeping behavior, physical activities, spiritual behavior), seem to be related to rheumatoid arthritis.

Psychological Afflictions (*Vikaras*):

"Psychological afflictions (egotism, attachment, greed and anger) make an individual get trapped in net created by own self. These are also called Negative Emotions. When mind senses something it does not feel good it reacts to remove the source of unwanted sensations. This reaction of dwesha is source of vikaras and as soon as mind flows in this direction vikaras get stronger and so this mind feels pain. These vikaras have spreading tendencies. For e.g. angry person will spread its anger to others. So people will also get angry after coming in contact with this person and will spread it further. This is like seed and fruit story. Here fruit is Vikara and seed also vikara. So one keeps on spreading this fruit and makes the whole environment painful. There seems no way to get out of it. When an angry person goes to someone to sow his seed of anger in his mind he should not let him do that! This is possible only when a person is emotionally stable or sthitpragya.

Egotism:

Egotism is the drive to maintain and enhance favorable views of oneself, and generally features an inflated opinion of one's personal features and importance — intellectual, physical, social and other. The egotist has an overwhelming sense of the centrality of the 'Me': of his personal qualities. Egotism is closely related to "loving one's self" or narcissism. Egotists have a strong tendency to talk about themselves in a self-promoting fashion, and they may well be arrogant and boastful with a grandiose sense of their own importance. Their inability to recognize the accomplishments of others leaves them profoundly self-promoting; while sensitivity to criticism

may lead on the egotist's part to narcissistic rage at a sense of insult. Looked at differently, the conceit of egotism describes a person who acts to gain values in an amount excessively greater than that which he or she gives to others. Egotism differs from egoism, the unremitting pursuit of one's own self-interest.

It is one of the emotions of the Mind. It is the greatest of all barriers in going to the source of light and life and wisdom, in attaining intuitive knowledge. It is the source of all of our problems. It is the individual Ego, which feels it to be a distinct, separate entity. It provides identity to our functioning, but it also creates our feelings of separation, pain, and alienation as well. The purpose of the ego is to hold and retain our body, to retain our individuality. But unfortunately ego gets involved with other things, and tries to get involved with others' individuality as well. Even while practicing the great virtues of truthfulness and nonviolence, a person can feed the ego.

A human being is miserable if he fails to unfold and use his inner potentials. In order to unfold his inner potentials, he must purify the ego or surrender it to the higher Reality. After renouncing slavery to the ego, he can emerge from the confines of body, senses, and mind. A purified ego does not create barriers. By practicing diligently, one may attain concentration of mind, one may speak the truth, and one may serve others, but one cannot realize the Truth unless one surrenders one’s ego to the higher Self. Only after rising above egocentric awareness, can one find the universe within. Only then can one learn to love all and exclude none. One who does not love one’s fellow beings, cannot love God at all. Once ego surrenders itself to the highest Truth, one attains victory, and spiritual illumination is ours. Soon after the victory over ego, all other virtues, such as humility, love, selflessness, compassion, and kindness, spontaneously unfold. These virtues are prerequisites for self-transformation. When these virtues blossom, a human being becomes healthy, mentally and as well as physically.

Moos and Solomon (1965) studied Personality correlates of the degree of functional incapacity of patients with physical disease. The paper reported an attempt to discover relationships between personality variables and the degree of functional incapacity shown by patients with rheumatoid arthritis. Two groups of patients were selected from a larger sample of female

patients with rheumatoid arthritis. In the first group the stage of progression of the illness was less than the class of functional incapacity manifested by the patient; whereas, in the second group the stage of progression was either greater than or equal to the class of functional incapacity. A Minnesota Multiphasic Personality Inventory (MMPI) was administered to each patient, and a total of 88 personality scales derived from the items on this test were scored. An attempt was also made to estimate empirically what percentage of the MMPI scales would have shown significant differences between the groups by chance alone. The results indicated that the empirically derived average percentage of scales significantly differentiating two randomly selected groups was remarkably close to what would actually be expected on *a priori* grounds according to probability theory, and was much less than the actual percentage of scales which significantly differentiated the two groups actually utilized in the study. The patients with greater functional incapacity scored significantly higher on scales reflecting (1) physical symptoms; (2) depression, apathy and lack of motivation; (3) general 'neurotic' symptoms such as lack of ego strength, alienation and isolation from self and others, anxiety and hostility; (4) general 'psychotic' symptoms; (5) problems around control of impulses; and (6) particular personality traits, i.e. prejudice, ethnocentrism and dependency.

Attachment:

Attachment may be defined as "affection ties that one person or animal forms between himself and another specific one – a tie that binds them together in space and endures over time." Attachment is the mother of all miseries. It is one of the negative emotions of the mind. It arises when one has achieved something of his desire and he becomes attached to it by identifying himself with it. Possessing anything is very dangerous because it creates attachment. There is nothing that is really ours. We become attached to things and people, and think that they are ours, but they never belong to us. Ignorance-driven attachment is the cause of birth, death and rebirths. It is only by renouncing this attachment one can set himself/herself free and fill life with real happiness.

There is a difference in attachment and love. Attachment is selfish; love is selfless. Attachment brings bondage; love gives freedom. Attachment contracts consciousness; love expands it. Attachment becomes a source of torment; love becomes source of liberation. A relationship built

on expectation can only bring misery; these days most of the relationships are attachments and not love. When a Spiritual person asks about getting rid of attachment, they are not asking not to love or not to care; actually they are asking for unselfish love. In reality, getting rid of attachment is true unselfish love. Attachment is the source of our pains. If man is not attached to the object or person, then he would not feel the pain when he has lost that object or person.
According to Indian Philosophy, non-attachment is like a fire that can burn the binding power (germination power) of past samskaras. Non-attachment and love are one and the same. One is advised to learn to love all the things of the world, but not to get attached to them. This is the philosophy of non-attachment. If one really wants to enjoy life and remain happy, one has to learn to practice and understand the philosophy of non-attachment. The greatest happiness in life comes from giving, or renunciation which can lead us towards healthy life.

All the things of the world belong to Providence. One should use them, but should not try to own them. That is a serious mistake that people usually commit. This is something wrong with one's thinking, something wrong with one's behavior, something wrong with one's understanding. So, all the things of the world can be used by us but we should not get attached, because they are not ours, they are given to us. Non-attachment is like a fire that can burn the binding power (germination power) of past samskaras. Non-attachment and love are one and the same. One should learn to love all the things of the world, just as means but one should not get attached to them. This is the secret philosophy of non-attachment. The failure to form a secure attachment with a caregiver has been linked to a number of problems including conduct disorders and oppositional-defiant disorders. Researchers also suggest that the type of attachment displayed early in life can have a lasting effect on later adult relationships.

McWilliams, Cox Brian and Murray (2000) studied Impact of Adult Attachment Styles on Pain and Disability Associated with Arthritis in a Nationally Representative Sample. The objective of this study was to evaluate Mikail et al.'s hypothesis that adult attachment styles are associated with important pain-related variables such as pain and disability levels. A cross-sectional design was used to examine the relation between measures of adult attachment styles and both pain and disability. The data used were obtained from the National Co morbidity Survey, a large and nationally representative sample of community-dwelling individuals aged 15 to 54 years. In the

present study, individuals (n = 381) in the National Co morbidity Survey with arthritis or related conditions were included. Ratings regarding three adult attachment styles (secure, anxious, and avoidant) were obtained by administering Hazan and Shaver's attachment self-report in an interview format. Pain and disability were assessed in a similar manner using four-point rating scales. Ratings of insecure attachment were positively and significantly correlated with both pain and disability. A multiple regression analysis revealed that pain severity and the rating of anxious attachment could account for 20.3% of the variance in disability. The attachment theory holds promise for understanding reactions to pain conditions.

Anger:

Anger, in its broadest sense, is behavior, or a disposition, that is forceful, hostile or attacking. It may occur either in retaliation or without provocation. Anger is an intention to cause harm or an act intended to increase relative social dominance. Predatory or defensive behavior between members of different species may not be considered aggression in the same sense. Anger can take a variety of forms and can be physical or be communicated verbally or non-verbally. Anger differs from what is commonly called assertiveness, although the terms are often used interchangeably among laypeople. Anger is a natural human response. It is the expression of frustration for a desire which finds obstruction in its fulfillment. Anger destroys mind and body. When we are angry, then anger takes over our mind and body. All the nerves in our body suffer during anger.

Rimon (1973) studied rheumatoid factor and aggression dynamics in female patients with rheumatoid arthritis. The buss-durkee inventory (bdi) rating for measuring aggression was performed on 17 consecutive sero negative (sn) and 17 matched sero-positive (sp) female in-patients with definite or classical rheumatoid arthritis. The test scores of the sp patients were lower than those of the sn patients in all item categories, the differences reaching statistical significance with regard to the scales verbal, suspicion, the sum score of the hostility scales (resentment and suspicion), and with regard to the total score of the bdi. In the sn group, the incidence of rheumatoid relatives was lower and the presence of emotionally significant life stress at the onset of the disease more frequent than in the sp patient group. The possibility of

two kinds of life stress and aggression dynamics profiles correlating with the presence or absence of rheumatoid factor is discussed.

Kohler and Boelicke (2000) studies "Do patients with rheumatoid arthritis suppress anger and aggression?''. Given the contradictory findings on aggression in patients with rheumatoid arthritis (RA), this topic was examined again in two studies. In both studies RA patients and patients with arthritis were compared (in-patients in study I, n = 28 in each sample; out-patients in study II, each sample comprising 22 subjects). Two aggression/anger inventories with a total of 10 scales were used for comparison. Samples were matched for gender and age; duration and severity of illness were used as covariates. No replicable differences between groups were found in any variable. The results did not support aggression theories of rheumatoid arthritis.

Greed:

It is a powerful cultural desire which comes through competition and insecurity. It makes one narrow, selfish and self-centered. Greedy people do not want to share the object of their attachment with others, they want to preserve it. It is applied to a markedly high desire for and pursuit of wealth, status, and power. As a secular psychological concept, greed is, similarly, an inordinate desire to acquire or possess more than one needs. It is typically used to characterizing those who seek excessive material wealth. The purpose for greed, and any actions associated with it, is possibly to deprive others of potential means (perhaps, of basic survival and comfort). A consequence of greedy activity may be inability to sustain any of the costs or burdens associated with that which has been or is being accumulated, leading to a backfire or destruction.

Life Style:

In present time lifestyle of person is so disturbed that it is resulting in more illness. This means a bigger burden on an already challenged healthcare system. Poor health also means more time lost at work, less quality recreational time, and even shorter lifespan. But people in this modern time have a mindset that takes good health for granted. One can suffer from years of aches and pains, and would just ignore them, and then feel so surprised when one finds out one has developed a serious chronic disease. One of a chronic disease due to unhealthy life style is growing fast in adulthood is known as rheumatoid arthritis. Life style includes some of the important variables

of daily routine like Eating behavior, Sleeping behavior, Physical activities and Spiritual Behavior. The major diseases of our ancestors, such as polio, smallpox, tetanus, etc. have been almost eradicated, but life style diseases are becoming more and more common (World Health Organization, 2000).

Food intake Behavior:

Diet can influence health either through changes in body weight or via over – or under consumption of specific dietary components. Greeno and Wing (1994) proposed two hypotheses concerning the link between stress and eating: (1) the general effect model, which predicts that stress changes food intake generally; and (2) the individual differences model, which predicts that stress only causes changes in eating in vulnerable groups of individuals. Most research has focused on the individual differences model and has examined whether either naturally occurring stress or laboratory- induced stress causes changes in eating in specific individuals.

The concept of healthy diet has changed over time. Currently the consensus states that a healthy diet should be high in protein, carbohydrate and low in fat. Diet is related to health in terms of promoting good health and managing illness. Diet also has a role to play in treating illness once diagnosed. The patients are recommended to change their life style including their food intake behavior. Research exploring the diets of the elderly indicates that although many younger and non-institutionalized members of this group have satisfactory diets, many elderly people, particularly the older elderly, reported diets that are deficient in vitamins, too low in energy and have poor nutrient content. The need for vitamins, minerals, and other micronutrients increases with age because the body's ability to metabolize food and fully extract its nutrients decreases, due to the growing inefficiency of the digestive system (Reyes, 1999). Among the micronutrients that are essential for good health are Iron, Zinc, Magnesium and Copper. According to Ayurveda, over eating and consumption of oily, spicy food (Rajasi) is related to the occurrence of rheumatoid arthritis.

Sleeping Behavior:

Sleep is a naturally recurring state characterized by reduced or absent consciousness, relatively suspended sensory activity, and inactivity of nearly all voluntary muscles. It is distinguished

from wakefulness by a decreased ability to react to stimuli, and is more easily reversible than being in hibernation or a coma. Sleep is a heightened anabolic state, accentuating the growth and rejuvenation of the immune, nervous, skeletal and muscular systems. It is observed in mammals, birds, reptiles, amphibians and fish. The purposes and mechanisms of sleep are only partially clear and the subject of substantial ongoing research. Sleep is sometimes thought to help conserve energy, though this theory is not fully adequate as it only decreases metabolism by about 5–10%. Additionally it is observed that mammals require sleep even during the hypo-metabolic state of hibernation, in which circumstance it is actually a net loss of energy as the animal returns from hypothermia to euthermia in order to sleep. Sleep problems are common in this population, and are increasingly recognized as a potentially important influence on emotional adjustment and physical symptoms (Hamilton et al., 2008). Given the daily demands of coping with chronically painful and limiting Rheumatoid arthritis, a good night's sleep is almost always welcome, but unfortunately infrequent for many patients.

Drewes, Savendsen and Hasen (1988) investigated sleep in patient with rheumatoid arthritis: a comparison with healthy subjects and studies of sleep/wake interactions. Sleep complaints are frequent in patients with rheumatoid arthritis (RA) and sleep disturbances may contribute to pain and other daytime complaints. The aims of the current study were to compare ambulatory sleep recordings from consecutively selected patients with RA to those obtained in healthy controls, and to study the relationships between sleep structure and clinical symptoms. Sleep recordings were obtained from 41 out-patients with RA and 19 matched controls. All had clinical examinations and completed different questionnaires. Recordings were scored traditionally and, moreover, the electroencephalography (EEG) was subjected to frequency analysis. For the study of sleep-wake interactions in the patients, a graphical chain model was used. The patients had many sleep-related complaints. An increase in the number of periodic movements of the legs (PML) during sleep was seen in comparison with controls, but otherwise only minor differences were observed in classical sleep stages. Data from frequency analysis showed an increase in alpha (8-12 Hz)-EEG activity in sleep stages non-rapid eye movement (NREM) 2-4 in most sleep cycles. The statistical model demonstrated a complex but independent correlation between morning stiffness, pain and joint tenderness on the one hand, and awakenings, stage NREM2, slow-wave sleep and stage REM on the other, probably reflecting a relationship between sleep

patterns and pain in RA. In conclusion, only the increase in PML and alpha-EEG activity distinguished the sleep in RA patients from that of healthy controls. However, the demonstrated interaction between daytime complaints and sleep patterns may increase the understanding and treatment of the disease. In future research, graphical chain models may improve our understanding of complex relationships between multiple variables.

Mahowald, Bunddie and Ytterberg (1989) studied Sleep fragmentation in rheumatoid arthritis. Fatigue is commonly reported by patients with rheumatoid arthritis (RA), and it is frequently used to evaluate disease activity and response to therapy. They theorized that the feeling of fatigue in patients with RA may be a manifestation of disturbance of sleep. Sixteen patients with chronic, active RA, who were selected for early onset of fatigue (<6 hours after morning awakening), were extensively evaluated by formal all-night polysomnographic recording and multiple sleep latency testing (MSLT). Although no sleep deprivation was found, all patients had some type of marked disturbances of sleep, including unanticipated sleep apnea (2 patients), frequent movement of extremities (all 16 patients), and frequent arousal (all 16 patients). The alpha-delta sleep pattern was present in 13 patients, and 7 were found by MSLT to be hyper somnolent. None of the patients accurately recognized the degree of their sleep disruption. Our findings from the MSLT indicate that fatigue in patients with RA may be a manifestation of sleep fragmentation, rather than a nonspecific constitutional symptom.

Hirsch, Carlander and Sany (2005) studied Objective and Subjective Sleep Disturbances in Patients with Rheumatoid Arthritis. The aim was to assess objective and subjective evidence of sleep disturbances in patients with rheumatoid arthritis (RA) and to examine correlations between parameters of inflammatory activity and sleep pathology. Nineteen RA patients and 19 age-matched healthy control subjects underwent all-night polysomnography on 2 consecutive nights. RA patients were also evaluated for daytime sleepiness by mean sleep latency test and responded to a self-report questionnaire on their first night. Whereas normal sleep architecture is conserved in RA, former findings of severe sleep fragmentation and an enhanced presence of primary sleep disorders were conformed. No correlation exists between RA activity and the sleep disorders. Subjective assessment was not consistent with the objective evidence of sleep disruption, unlike the findings in patients with fibrosis. Sleep is severely disturbed in patients

with RA, regardless of the inflammatory disease activity. Since the studies are very contradictory, the present research wants to study the relation between sleeping behavior of RA patients and normal individuals.

Physical activities:

Physical activity has been defined as 'any bodily movement produced by skeletal muscles which results in energy expenditure'. To increase physical strength and maintain bone density, regular exercise reduces an older person's risk factor for rheumatoid arthritis the most common chronic illnesses of adulthood. Physical exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness. It is performed for various reasons including strengthening muscles and the cardiovascular system, honing athletic skills, weight loss or maintenance, as well as for the purpose of enjoyment. Frequent and regular physical exercise boosts the immune system, and helps prevent the "diseases of affluence" such as heart disease, cardiovascular disease, Type 2 diabetes and obesity. It also improves mental health, helps prevent depression, helps to promote or maintain positive self-esteem, and can even augment an individual's sex appeal or body image, which is also found to be linked with higher levels of self-esteem. Health care providers often call exercise the "miracle" or "wonder" drug—alluding to the wide variety of proven benefits that it provides. Researches show that Physical activities are most important to maintaining physical vitality.

Minor , Hewett and Webel (1988) studied Exercise tolerance and disease related measures in patients with rheumatoid arthritis and osteoarthritis. One hundred and twenty patients with symptomatic rheumatoid arthritis (RA) or osteoarthritis (OA) in weight bearing joints (RA = 40; OA = 80) performed subjective maximal graded exercise tests on a motor driven treadmill. Disease related measures were also assessed. Findings from this sample indicated that people with arthritis were significantly impaired in exercise tolerance, flexibility and biochemical efficiency. Significant differences between diagnoses appeared on a number of disease related measures; however, there was little correlation between disease related measures and exercise tolerance. Women demonstrated a greater aerobic impairment than men; and women with RA had a greater aerobic deficit than women with OA.

Minor, Hewett and Anderson (1989) measured Efficacy of physical conditioning exercise in patients with rheumatoid arthritis and osteoarthritis. A group of 120 patients with rheumatoid arthritis or osteoarthritis volunteered to be subjects for this study of aerobic versus nonaerobic exercise. Patients were stratified by diagnosis and randomized into an exercise program of aerobic walking, aerobic aquatics, or non-aerobic range of motion (controls). The retention rate for the 12-week program was 83%. Exercise tolerance, disease-related measures, and self-reported health status were assessed. The aquatics and walking exercise groups showed significant improvement over the control group in aerobic capacity, 50-foot walking time, depression, anxiety, and physical activity after the 12-week exercise program. There were no significant between-group differences in the change scores for flexibility, number of clinically active joints, duration of morning stiffness, or grip strength. Our findings document the feasibility and efficacy of conditioning exercise for people who have rheumatoid arthritis or osteoarthritis.

Nordemar, Ekblom and Zachrisson (1981) did study on Physical Training in Rheumatoid Arthritis: A Controlled Long-Term Study. Twenty-three patients with rheumatoid arthritis (RA) have been given physical training for 4 to 8 years. To compare, a control group of equal size and with the same disease severity was taken. The training program consisted of home-training and for most of the patients also group-training led by a physiotherapist. During the observation period was found a significantly less pronounced progress of X-ray changes in the joints of the active patients compared with control patients. Physiological tests and clinical parameters, including sick-pension and sick-leave, show unanimously a better disease outcome in the active group of patients. There is probably a risk of overuse or disuse of the joints in RA but it was thought that it is better to be overactive rather than the reverse. As in many other diseases, the general prescription of rest in RA is not adequate.

Spiritual Behavior:

Spirituality has been defined in numerous ways. These include: a belief in a power operating in the universe that is greater than oneself, a sense of interconnectedness with all living creatures, and an awareness of the purpose and meaning of life and the development of personal, absolute values. It's the way one finds meaning, hope, comfort, and inner peace in one’s life. Acts of

compassion and selflessness, altruism, and the experience of inner peace are all characteristics of spirituality. Many Americans are becoming interested in the role of spirituality in their health and health care. This may be because of dissatisfaction with the impersonal nature of current medical system, and the realization that medical science does not have answers to every question about health and wellness. Spiritual practices tend to improve coping skills and social support, foster feelings of optimism and hope, promote healthy behavior, reduce feelings of depression and anxiety, and encourage a sense of relaxation. By alleviating stressful feelings and promoting healing ones, spirituality can positively influence immune, cardiovascular (heart and blood vessels), hormonal, and nervous systems. Qualities like faith, hope, and forgiveness, and the use of social support and prayer seem to have a noticeable effect on health and healing.

Wachholtz, Pearce and Koenig (2007), explored the relationship between spirituality, coping and pain. There is growing recognition that persistent pain is a complex and multidimensional experience stemming from the interrelationship among biological, psychological, social, and spiritual factors. Chronic pain patients use a number of cognitive and behavioral strategies to cope with their pain, including religious/spiritual forms of coping, such as prayer, and seeking spiritual support to manage their pain. The findings explored the relationship between the experience of pain and religion/spirituality with the aim of understanding not only why some people rely on their faith to cope with pain, but also how religion/spirituality may impact the experience of pain and help or hinder the coping process. Future research priorities were identifies that may provide fruitful research in illuminating the relationship between religion/spirituality and pain.

Bartlett, Piedmont and Matsumoto (2003) worked on Spirituality, well-being, and quality of life in people with rheumatoid arthritis. They evaluated spirituality, well-being, and quality of life (QOL) among people with rheumatoid arthritis (RA). Questionnaires assessing positive and negative affect, depression, QOL and spirituality were completed. Disease activity was assessed by rheumatologic examination. Women ($n = 62$) had a mean (± SD) age of 53.0 (± 13.0) years with 12 (± 13) swollen and tender joints (STJ). Men ($n = 15$) were 61.9 (± 13.0) years with 7 (± 11) STJ. Disease activity was associated ($p < 0.05$) positively with depression ($r = 0.23$), pain ($r = 0.26$), poorer self-ratings of health ($r = 0.29$) and physical role limitations ($r = 0.26$). Spirituality was associated directly with positive affect ($r = 0.26$) and higher health perceptions (r

= 0.29). In multiple regressions, spirituality was an independent predictor of happiness and positive health perceptions, even after controlling disease activity and physical functioning, for age and mood. Spirituality may facilitate emotional adjustment and resilience in people with RA by experiencing more positive feelings and attending to positive elements of their lives.

Psychosocial Stressors:

The Modern world, which is said to be a world of achievements, is also a world of stress. One finds stress everywhere, whether it be within the family, business organization or any other social or economic activity. The concept of stress in the modern sense is not easily found in the traditional texts of Indian culture such as Charak Samhita, Patanjali's Yogasutra and Bhagwad Gita. However, a number of concepts developed by ancient Indian scholars related to or appear similar to the phenomenon of stress. Some of these, for example, are dukha (pain, misery or suffering), klesa (afflictions), kama or trisna (desires), atman and ahamkara (self and ego), adhi (mental aberrations). It is interesting to note that the body-mind relationship, characteristic of modern stress studies, is emphasized in the ayurvedic (Indian) system of medicine.

The concept of stress was first introduced in the life sciences by Selye in 1936 who has greatly illuminated the action of the automatic nervous system and the pituitary – adrenal system in the body responses to stress. Any situation may be stressful if the organism is unable to adapt easily to it. Stress is a negative condition that can have an impact on one's mental and physical well-being. According to Selye (1956) there are three stages in the response to stress:

Acute stage: - It is the alarm reaction. This stage is divided into two phases:

Shock Phase – In the initial shock phase of the alarm reaction, bodily resistance to stress drops. Autonomic arousal and discharge of nor epinephrine and epinephrine from the adrenal medulla, as well as increasing release of ACTH and Corticoids. These responses tend to inhibit the immune system, which is termed immuno suppression. If the stress is too severe, the organism may die during the shock phase of the alarm reaction.

Counter shock phase - If the stress is not that severe, but continues then the alarm reaction is initiated. The ACTH and corticoid response causes the characteristics signs of the stress syndrome to appear, including adrenal enlargement, shrinkage of the thymus and lymph nodes, and ulceration.

During the counter shock phase, resistance to the stress increases above normal as more specific local defenses are prepared.

Stage of resistance - The most appropriate local channel of defense against the stress has been organized, and the generalized stress response is no longer necessary. Corticoids activity fall to almost normal levels, and the symptoms of the stress syndrome disappear. Such local adaptive responses may successfully eliminate the source of stress. However, if irritation persists for a very long time, the ability of the local adaptive responses to contain the stress and respond to new stress eventually breaks down, in which case the person enters the final stage of exhaustion. Stress is the body's reaction to any stimuli that disturb its equilibrium. When the equilibrium of various hormones is altered the effect of these changes can be detrimental to the immune system.

Stage of exhaustion: - The pituitary – adrenal system is again activated, corticoid level rises, immune suppression occurs, and the symptoms of the stress syndrome reappear. This reaction may prolong survival for a time, but gradually the resistance to the stress declines. Recovery is no longer possible if the stress continues and death eventually follows.

The human body is designed to experience stress and react to it. Stress can be positive, keeping us alert and ready to avoid danger. Stress becomes negative when a person faces continuous challenges without relief or relaxation between challenges. As a result, the person becomes overworked and stress-related tension builds. Stress is the body's reaction to any change that requires an adjustment or response. The body reacts to these changes with physical, mental, and emotional responses. Research suggests that stress also can bring on or worsen certain symptoms or diseases. Symptoms or signs of stress may be cognitive, emotional, physical, or behavioral. Physical symptoms include Aches and pains, Diarrhea or constipation, Changes in blood glucose, Chest pain, rapid heartbeat etc. Forty-three percent of all adults suffer adverse health effects from stress. Seventy-five percent to 90% of all doctor's office visits are for stress-related ailments and complaints. Stress creates problems such as headaches, high blood pressure, heart problems, diabetes, skin conditions, asthma, depression and Rheumatoid Arthritis. People with arthritis experience more anxiety and depression than healthy individuals. These emotional conditions do not predict the initial occurrence of arthritis, but having arthritis clearly increases one's risk of emotional distress.

Once the disease develops, a vicious circle occurs for many patients: arthritis symptoms increase the person's stress, which, in turn, increases symptoms (Dougall & Baum, 2001). Some distress is caused by concerns over physical appearances that are common in more severe arthritis. Also, most people with arthritis have at least one other chronic illness, such as diabetes, asthma, or another pain condition, which increases their disability (Stang et. al., 2006). Stress may play a role both in the development of rheumatoid arthritis and in its aggravation. In particular, disturbances in interpersonal relationships may contribute to the development of the disease (Anderson, Bradley, Young, McDaniel, & Wise, 1985) and it course (Affleck, Tennen, Urrows, & Hihhins, 1994); Zautra, Burleson, Matt, Roth, & Burrows, 1994). Increased reactivity to stress and pain mat increased by the depression felt by rheumatoid arthritis patients (Zautra & Smith, 2001). The aggravation of rheumatoid arthritis by stress appears to be mediated by the immune system, inasmuch as those with rheumatoid arthritis show stronger immune responses to stress than do comparison groups (Harrington et. al., 1993; Timko, Baumgartner, Moods, & Miller, 1993; Zautra & Smith, 2001). Unfavorable social reactions to people with rheumatoid arthritis may also contribute to disability (McQuade, 2002).

Rimon and laakso (1985) done a 15-year follow-up study of 74 female patients with definite or classic rheumatoid arthritis (RA) was performed with special focus on the association between life stress and clinical course of the illness. Two categories of RA could be classified: a disease form less connected with genetic factors and more influenced by major psychodynamic conflict situations ('major conflict group' MCG) and a second form more associated with hereditary predisposition and less influenced by environmental psychosocial changes ('non-conflict group', NCG).

Patterson, Waggoner and Freyberg (1943) studied the relationship between emotional factors and rheumatoid arthritis. Twenty-five rheumatoid arthritis and 25 control patients were subjected to studies of skin temperature changes under induced emotional stress. Suggestive but inconclusive differences were noted. Emotional stress was found to produce a drop in skin temperature indicative of changes in circulation. The importance of such a mechanism in the development of arthritis could not be conclusively evaluated but its influence appeared to be greater in producing exacerbations or in influencing the course of the illness. The significance of emotional stress and

its method of action in regard to rheumatoid arthritis remain unsettled but the field is worthy of further investigation.

Walker, Littlejohn and McMurry (1999) studied Stress system response and rheumatoid arthritis: a multilevel approach. A growing body of research indicates that the stress system, and its interactions with the immune system, plays a pivotal role in the etiology and progression of rheumatoid arthritis (RA). The stress system has multiple levels and comprises physiological, psychological and environmental components. However, most investigations in RA that involve the stress system tend to focus on the interrelationships between neuroendocrine and immune function, and related disease activity, with little regard for the role of other aspects of stress system activation, including psychological variables. This is despite the fact that psychological stressors, and related psychological variables, are known to influence RA disease activity. This article aims to explore the multiple levels of stress system activation and how they may ultimately influence disease-related outcomes in RA. Some measurement issues of psychological stress cab also examined.

Psychologists have used cognitive interventions in the treatment of rheumatoid arthritis (McCracken, 1991). In one study (O'Leary, Shoor, Loring, & Holman, 1988), rheumatoid arthritis patients were randomized into a cognitive-behavioral treatment that taught skills in managing stress, pain, and symptoms of the disease, or they received an arthritis self help book containing useful information about arthritis self management. The cognitive - behavioral treatment was designed to increase perception of self efficacy with respect to the disease. Results indicated that patients in the cognitive – behavioral treatment experienced reduce pain and joint inflammation and improved psychological functioning. The degree to which people improved was correlated with the degree of self - efficacy enhancement, suggesting that the enhancement of perceived self – efficacy to manage the disease was responsible for the positive effects.

Indeed, because a chief side effect of rheumatoid arthritis is the sense of helplessness over the inability to control the disease and the pain it causes, any intervention that enhances feeling of self – efficacy should have beneficial effects on psychological adjustment (Schiaffino & Revenson, 1992; Smith & Wallston, 1992). Optimism can lead people to cope more actively with

rheumatoid arthritis, improving adjustment over time (Brenner, Melamed, & Panush, 1994). Nonetheless, as is true for all cognitive behavioral interventions, relapse to old habits is likely; therefore relapse prevention strategies to preserve both behavioral changes and a sense of self – efficacy and optimism are an important part of these interventions with rheumatoid arthritis patients (Keefe & Van Horn, 1983).

Over all, cognitive behavioral interventions including bio feedback, relaxation training, problem-solving skills and cognitive pain - coping skills training, have been modestly successful in aiding pain management for rheumatoid arthritis patients. Interventions such as these appear to be modestly successful in improving both joint pain and psychological functioning, although the interventions appear to be more effective to the patients who have had the illness for shorter period of time (Astin, Beckner, Soeken, Hochberg, & Berman, 2002). Coordinating these cognitive – behavioral interventions with the use of drug therapies to control pain provides the most comprehensive approach at present (Zautra & Manne, 1992).

After reviewing the relevant literature, the investigator felt the need to study the psychological factors that may influence the prevalence of Rheumatoid Arthritis. Since not much work has been done in India, the following problem was delineated.

Problem:

Is there any difference in the psychological afflictions (Egotism, Attachment, Anger and Greediness), Life styles (Food intake Behavior, Sleeping Behavior, Physical activities and Spiritual Behavior), and Psychosocial Stressors of Rheumatoid Arthritis patients and normal adults?

Objectives:

- To determine the contribution of psychological afflictions (Egotism, Attachment, Anger and Greediness) and life style in the determination of stress among rheumatoid arthritis patients.

- To determine the contribution of psychological afflictions (Egotism, Attachment, Anger and Greediness) and life style in the determination of stress among normal adults.
- To compare the level of psychological afflictions, life style and stress between rheumatoid arthritis patients and normal adults.

Justification of the problem:

Many people experience physical disabilities due to rheumatoid arthritis. It may have a connection with some psychological factors or some psychosocial factors. Psychological factors include Psychological afflictions (Egotism, Attachment, Anger and Greediness); whereas psychosocial factors include daily life style (Food intake behavior, Sleeping Behavior, Physical activities and Spiritual behavior) and Psychosocial stressors. So investigator is curious to make comparative study of these variables among Rheumatoid Arthritis patients and normal adults.

Hypotheses:

- There exists a contribution of psychological afflictions (Egotism, Attachment, Anger and Greediness) in the determination of stress among rheumatoid arthritis patients.
- There exists a contribution of life style (Food intake behavior, Sleeping Behavior, Physical activities and Spiritual behavior) in the determination of stress among rheumatoid arthritis patients.
- There exists a contribution of psychological afflictions (Egotism, Attachment, Anger and Greediness) in the determination of stress among normal adults.
- There exists a contribution of life style (Food intake behavior, Sleeping Behavior, Physical activities and Spiritual behavior) in the determination of stress among normal adults.
- There would be a significant difference between psychological a afflictions (Egotism, Attachment, Anger and Greediness), life style (Food intake behavior, Sleeping Behavior, Physical activities and Spiritual behavior) and stress between rheumatoid arthritis patients and normal adults.

Operational definitions of the terms:

Psychological Afflictions: Psychological afflictions can be described as those mental states with negative feelings which make a person miserable and sad.

Egotism: Egotism means placing oneself at the core of one's world with no concern for others, including those loved or considered as "close," in any other terms except those set by the egotist.

Attachment: Attachment is not just a connection between two people; it is a bond that involves a desire for regular contact with that person and the experience of distress during separation from that person.

Anger: Anger may be defined as physical or verbal behavior that is intended to hurt someone voluntary or involuntary.

Greediness: Greed is the inordinate desire to possess wealth, goods, or objects of abstract value with the intention to keep it for one's self, far beyond the dictates of basic survival and comfort.

Stress: Stress occurs when normal homeostatic regulatory mechanism of the body fails to adapt to a situation.

Life Style: Life style is a set of attitudes, habits, or behaviors associated with a particular person or group.

Food intake Behavior: Eating habits for taking food with essential nutrients, such as carbohydrates, fats, proteins, vitamins, or minerals, and is ingested and assimilated by an organism to produce energy, stimulate growth, maintain life and taken in a unit of time, usually daily.

Physical Activities: Physical activity simply means movement of the body with moderate or vigorous intensity that uses energy.

Sleeping Behavior: Sleeping behavior is a state when our senses and motor activity are relatively suspended; there is total or partial unconsciousness, and all voluntary muscles are inactive.

Spiritual Behavior: Spirituality behavior is an effort to know our real self, to discover the true nature of consciousness. It includes prayer, meditation, altruistic behavior & community services etc.

Sample description:

The present study will be done on 300 adults where 150 will be those who have suffered with the rheumatoid arthritis problem during at least one year and other 150 will be normal adults. The

sample of 150 patients will be selected purposively and a matched group of 150 normal adults would be selected by matching technique. The age range of the adults to be selected for the research will be (I) young adults, 20 years to 40 years (II) middle adults, 41 years to 60 years (III) old adults, 61 years to 80 years. The sample will include both male and female adults. Their educational qualification will be at least class 12^{th} pass. The entire sample will be taken from the middle and higher socioeconomic status (Family income Rs. 30,000 to Rs. 90,000 per month). For the present study sample will be collected from Agra, Delhi and Mathura city.

Variables:

Independent Variable:

Rheumatoid Arthritis

Dependent Variables:

I. Psychological afflictions
Egotism
Attachment
Anger
Greediness

II. Stress

III. Life Style
Food intake behavior
Sleeping behavior
Physical activities
Spiritual behavior

Relevant Variables:

I. Age
II. Gender (Male and Female)
III. Socio Economic Status

Tools:

1. "Know Yourself (Part-1)" Egotism Scale By Das and Sisodia, 2011

Description: In egotism scale, there are 30 fixed alternative type items showing egotism in six different fields of life. These are – Egotism of physical and mental energy, Egotism of beauty, smartness and physical attraction, Egotism of wealth, property and luxury items, Egotism of social status and connections with influential and powerful role people, Egotism of superior genes cast or race, Egotism of community service, charity and religiosity.

Reliability: Item analysis was done to establish internal consistency to the egotism scale. Item with low coefficient of correlation (r =.10 or less) were discarded and finally 30 items with r = .11 to .75 were retained. Tests retest reliability of the scale (with time gape of 4 months) came out to be .55.

Validity: Egotism scores of teacher were correlated with student's rating of their teacher's egotism. The coefficient of correlation was found to be r = .65 showing high criterion concurrent validity.

2. "Know Yourself (Part-II)" Attachment Scale by Das and Sharma, 2012

Description: the scale has 21 items that are related to attachment. The answers are to be given the form of Yes/No/ Can't say.

3. "Know Yourself (Part-1II)" Anger Scale by Das and Sharma, 2012

Reliability: Test Retest Reliability Coefficient of the scale (with a time gap of 25 days) is 0.86.

Validity: The construct validity was found to be .65.

4. "Know Yourself (Part-1V)" Greediness Scale to be prepared by the investigator herself for the purpose of research.

5. Life Style Scale: Life style scale was prepared by Das and Chaudhary, 2010. It consisted of 50 items with maximum score of 150 and minimum score was 50. It consisted of 5 sections. In present research investigator will use its 4 sections.

- **Food Intake Behavior:** It has total 12 items, each item has 3 types of responses: always, occasionally and never. Test- retest reliability of this section was .99 and internal consistency is .83.

- **Physical Activity:** This section has 10 items. Each item can be responded in terms of any one the types of timing, which were scored as 1, 2, and 3. Test-retest reliability was .99 and internal consistency was .71.
- **Sleeping Behavior:** It has 10 items. Each item has 3 types of response: always, occasionally and never which were scored as 1, 2 and 3. Test- Retest reliability was .98 and internal consistency was .71.
- **Spiritual Behavior:** It also had 10 items. Each item has 3 type of response: always, occasionally and never, which were scored as 3, 2 and 1. Test- Retest reliability was .69 and internal consistency was .72.

6. Psychosocial Stressor Questionnaire:

ICMR Psychosocial Stressor questionnaire of stress by Srivastav (1992) will be used to measure the stress of university students. The questionnaire altogether consisted of 40 items represents seven categories of social- situations of stress.

Validity: Validity of the stress questionnaire was estimated by examining correlation between stress-score and the scores on the measures of various psychological and somatic reactions to felt stress, such as unhealthy or emotional coping neuroticism, behavioral pathologies, and somatic diseases. The analyses revealed manifestations of experienced stress, indicating high validity of the present measures of stress. The following Table records the obtained coefficients of correlation.

Correlation between psychosocial stress and its outcome

Reactions to Experienced - Stress	r (N=157)
Unhealthy or emotional coping style	.32*
Neuroticism	.38*
Behavioral Pathologies	.41*
Somatic Diseases	.40*

*p> .01

Reliability: Reliability of the measure of stress was estimated through Cronbach-Alpha correlation, Split-half (odd-even) and Retest methods. Reliability of the tool was also examined

through inter-rater consistency method. The obtained indices of reliability through different methods are presented in the following table:

Reliability-Indices of Stress

Methods of reliability	N	Reliability Index
Cronbach-Alpha	157	.88
Split-Half (ood – even)	157	.88
Retest	53	.72
Inter- Rater Consistency	59	.65

Research Design:

Correlation Design and Double group design will be used for present study.

Statistical Technique:

Multiple Regression Analysis and t test will be used for present study.

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